DECOMPRESSING 'THE GRID'

For some time now, we have been looking at a 2D grid in a multitude of manners, even extrapolations to 3D. Our perspectives have evolved at each step, our collaboration strengthened with each output and our insight grown day by day.
This document, is just that – documentation – of some steps from a new perspective of decompressing the grid, revealing more intricate patterns, visuals, concepts... more rabbit holes to follow...

More over, this is an attempted start to further document the collaborative efforts of shared free time across the globe, between open minds with intrigued, curious spirits. We have some backlog to bring up front – but with the content of this first document not yet having been shared, the intention is to bring this content to the group in this format, to encourage expansion and continuation in a track-able, catalogue-able direction.

So please... read on ☺

Christian Lamprecht **4th June 2012**

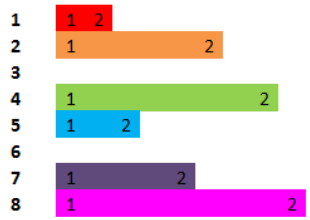
ROW									
1	1	2	3	4	5	6	7	8	9
2	2	4	6	8	1	3	5	7	9
3	3	6	9	3	6	9	3	6	9
4	4	8	3	7	2	6	1	5	9
5	5	1	6	2	7	3	8	4	9
6	6	3	9	6	3	9	6	3	9
7	7	5	3	1	8	6	4	2	9
8	8	7	6	5	4	3	2	1	9
9	9	9	9	9	9	9	9	9	9

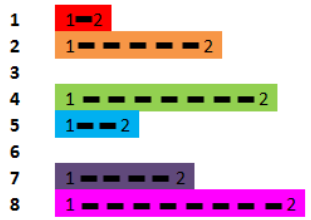
HOW WE HAVE BEEN USED TO THE GRID

FORM INVESTIGATED
---uncompressed---

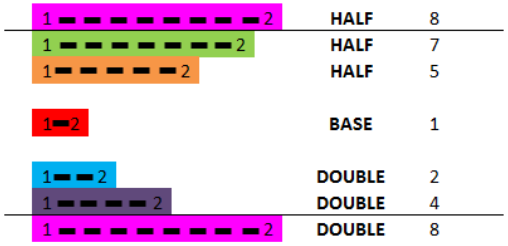
1	1	2	3	4	5	6	7	8	9																																																														
2					1					2					3					4					5					6					7					8					9																											
3																																																																								
4							1							2							3							4							5							6							7							8							9									
5		1		2		3		4		5		6		7		8		9																																																						
6																																																																								
7				1				2				3				4				5				6				7				8				9																																				
8								1								2								3								4								5								6								7								8								9

VIEWING AS 'STEPS' -> DISTANCE





	STEPS 1-2		
1	1		
2	5	*1+5 =*	*1+8 =*
3		*6*	*9*
4	7	*7+2 =*	*7+2 =*
5	2	*9*	*9*
6			
7	4	*4+8 =*	*5+4 =*
8	8	*12 =3*	*9*



8 is joins the loop... It is double of 4 and half of 7

1
5 = half of 1
7 = half of 5
2 = double of 1
4 = double of 2
8 = double of 4

27 9

HALVING & DOUBLING

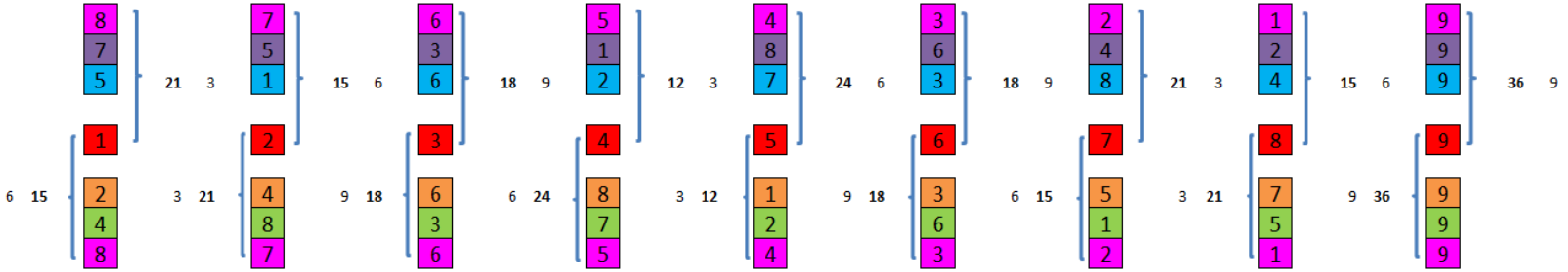
1	1	2	3	4	5	6	7	8	9
2	2	4	6	8	1	3	5	7	9
3	3	6	9	3	6	9	3	6	9
4	4	8	3	7	2	6	1	5	9
5	5	1	6	2	7	3	8	4	9
6	6	3	9	6	3	9	6	3	9
7	7	5	3	1	8	6	4	2	9
8	8	7	6	5	4	3	2	1	9
9	9	9	9	9	9	9	9	9	9

ARRANGED TO SUIT HALF/DOUBLE LOOP

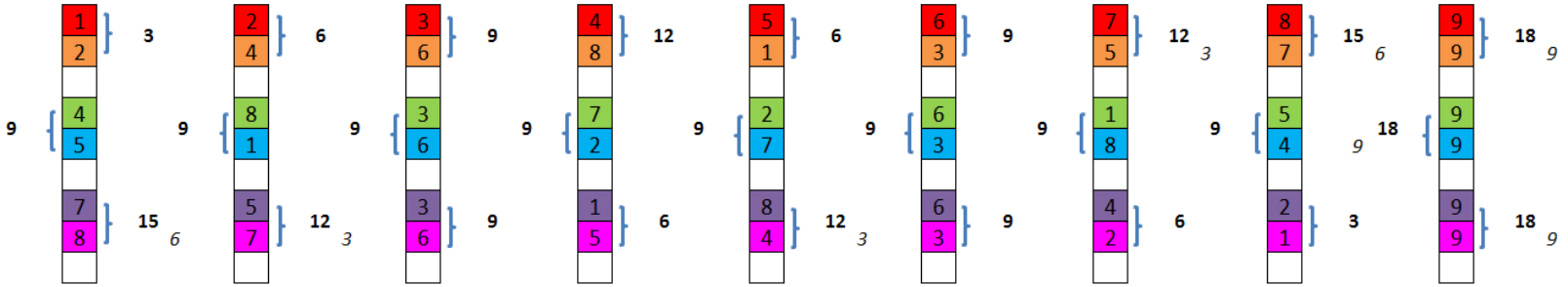
8	8	7	6	5	4	3	2	1	9	HALF
7	7	5	3	1	8	6	4	2	9	HALF
5	5	1	6	2	7	3	8	4	9	HALF
1	1	2	3	4	5	6	7	8	9	BASE
2	2	4	6	8	1	3	5	7	9	DOUBLE
4	4	8	3	7	2	6	1	5	9	DOUBLE
8	8	7	6	5	4	3	2	1	9	DOUBLE

Where do the 3 6 9 come into the grid?

Well... Maybe a long shot... But....



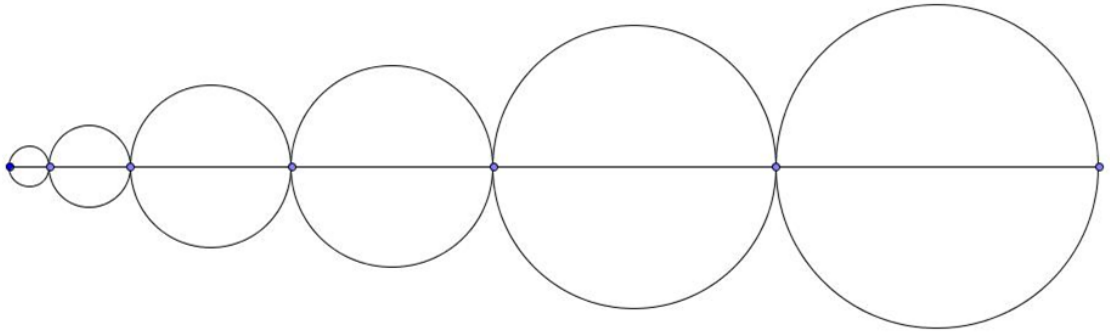
However, looking at the 'standard' grid... With similar principle...

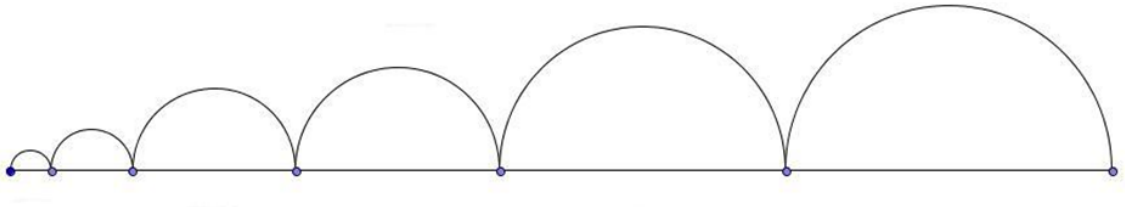


CIRCLES AND ARCS

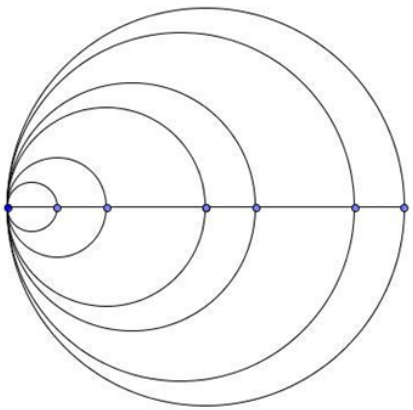
Reading the steps as distances, putting the steps end to end - as there is no such thing as a straight line, circles were used

From left to right... 1 - 2 - 4 - 5 - 7 - 8 circles with diameter = sequential step count (1 -> 2 etc...)

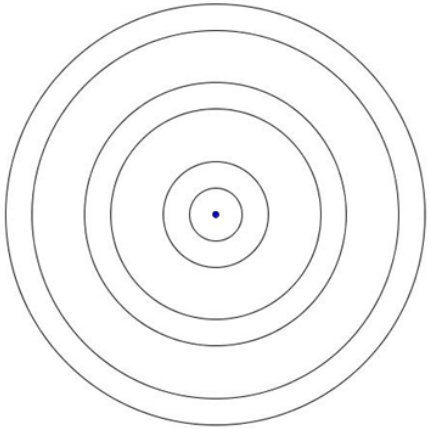




<u>Laying the circles amongst each other in various fashions</u> - *by laying, this has not been done to achieve a patter, simply the starting point of the circles/semi circles where aligned differently*
note: sizes differ only due to copy paste from different levels of zoom on actual image produced in Geogebra - all distances, lengths are as per the above ratios



Start of circles from edge



Start of cicles from central point

ROW	STEPS
1	1
2	5
3	0
4	7
5	2
6	0
7	4
8	8

PAIRED ROWS

a) 8 4

b) 2 7

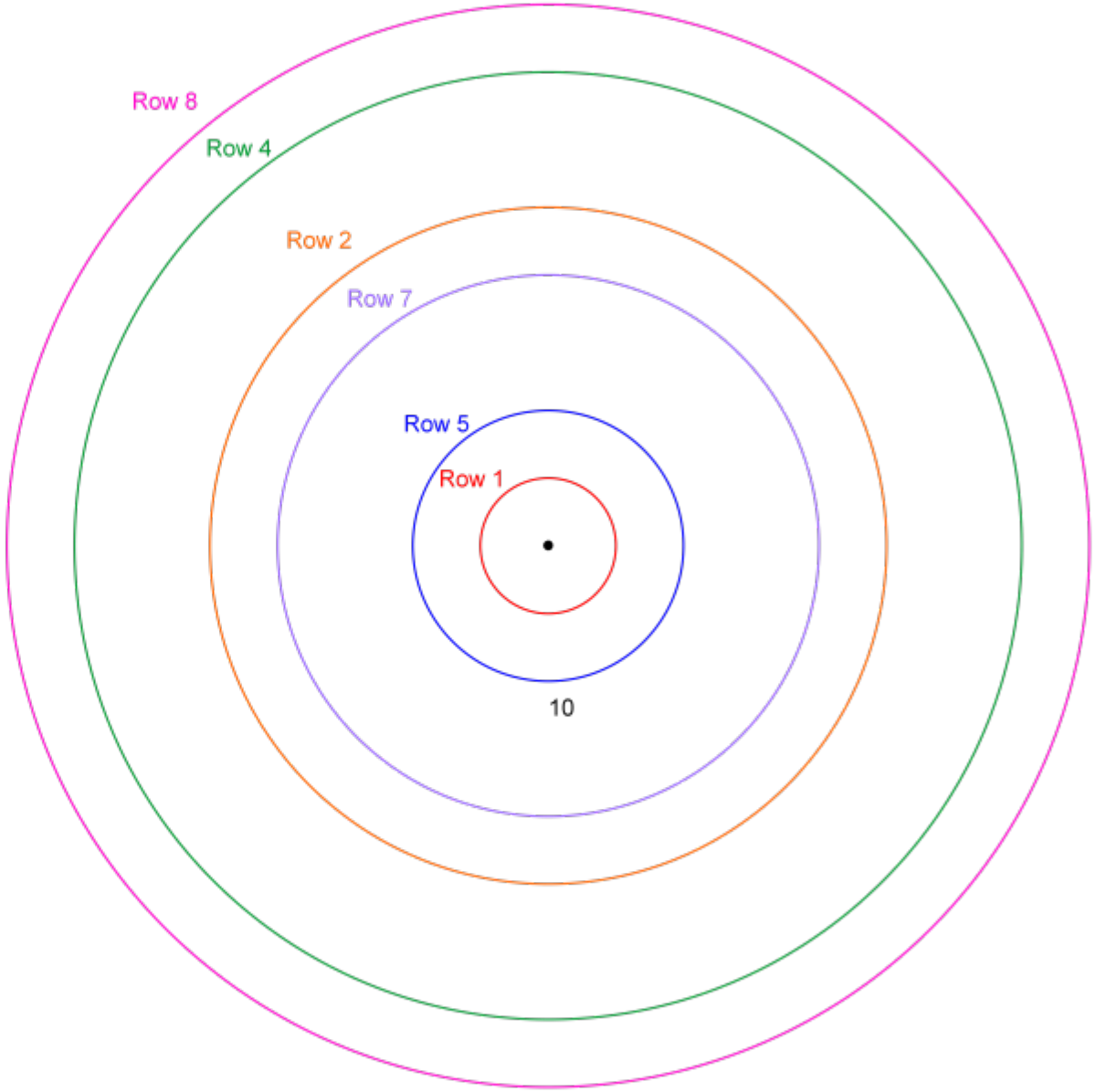
c) 5 1

PAIRED ROW STEPS

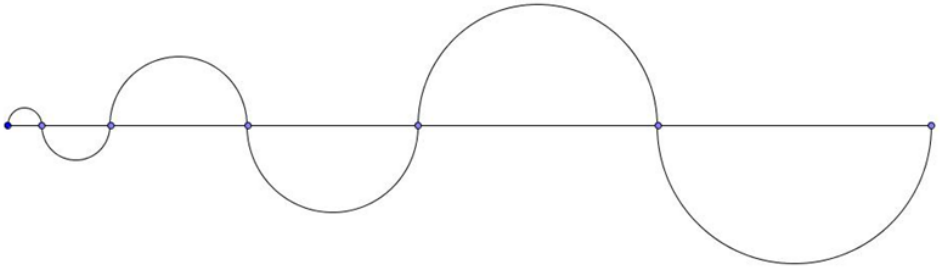
a) 8+7 => 15 = 6

b) 5+4 => 9

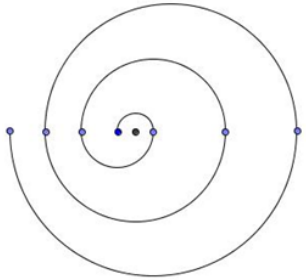
c) 2+1 => 3



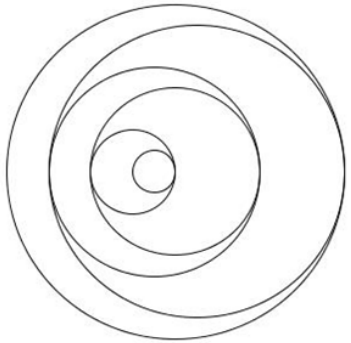
Laying the semi circles amongst each other in various forms



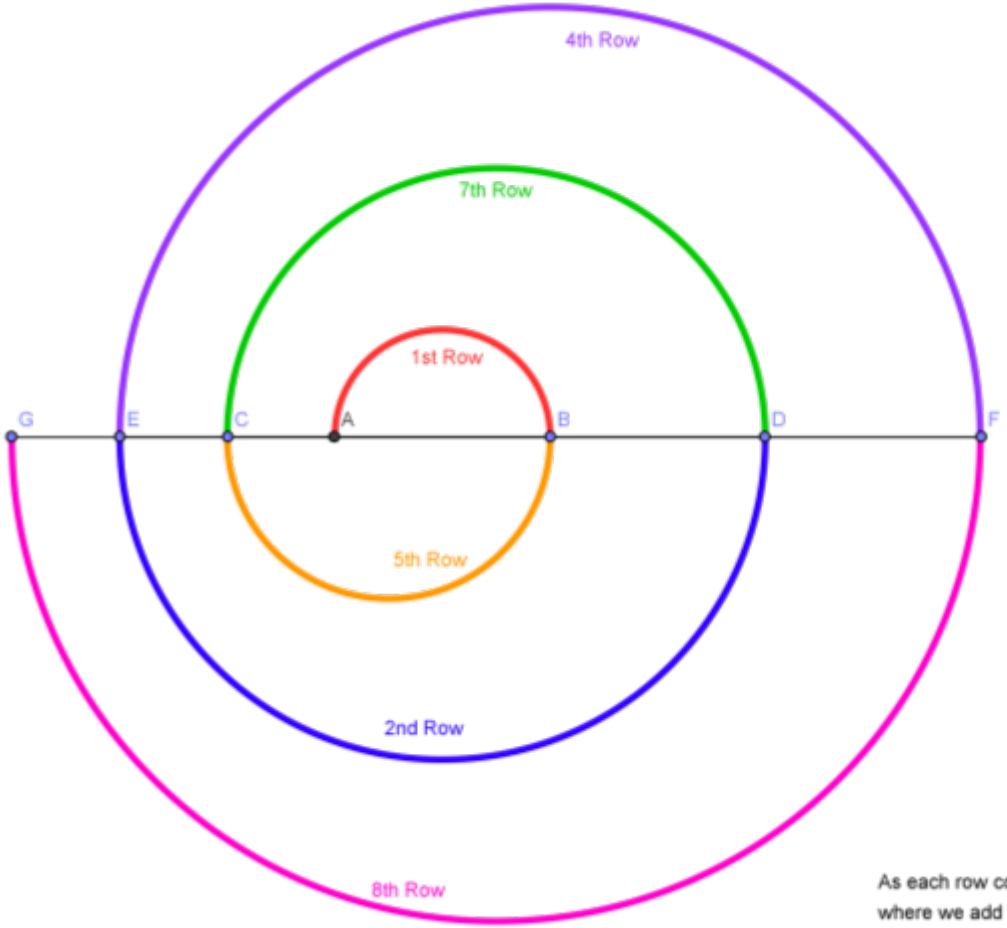
1 2 4 5 7 8



Sequential order, backed round into spiral



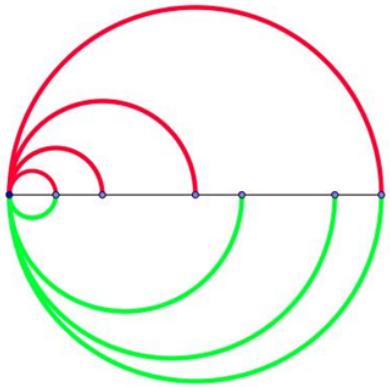
Sequential order, backed round into spiral completed on the horizontal mirror line

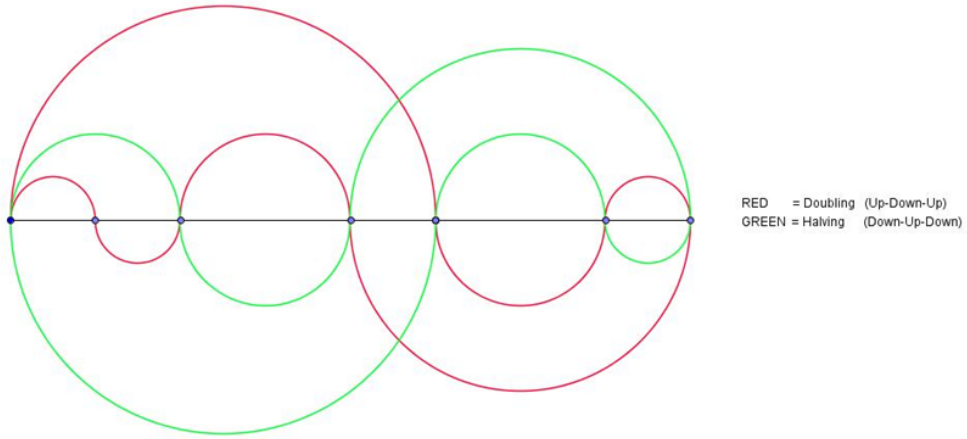


Sequential Steps (1-2-3...)
1st Row - 2
2nd Row - 6
3rd Row - 0
4th Row - 8
5th Row - 3
6th Row - 0
7th Row - 5
8th Row - 9

As each row contains 9 numbers - if we want to continue the arching where we add 9 to the sequential steps, we get the next positions of points to which to arch to...

Connection between doubling and halving with semi circles

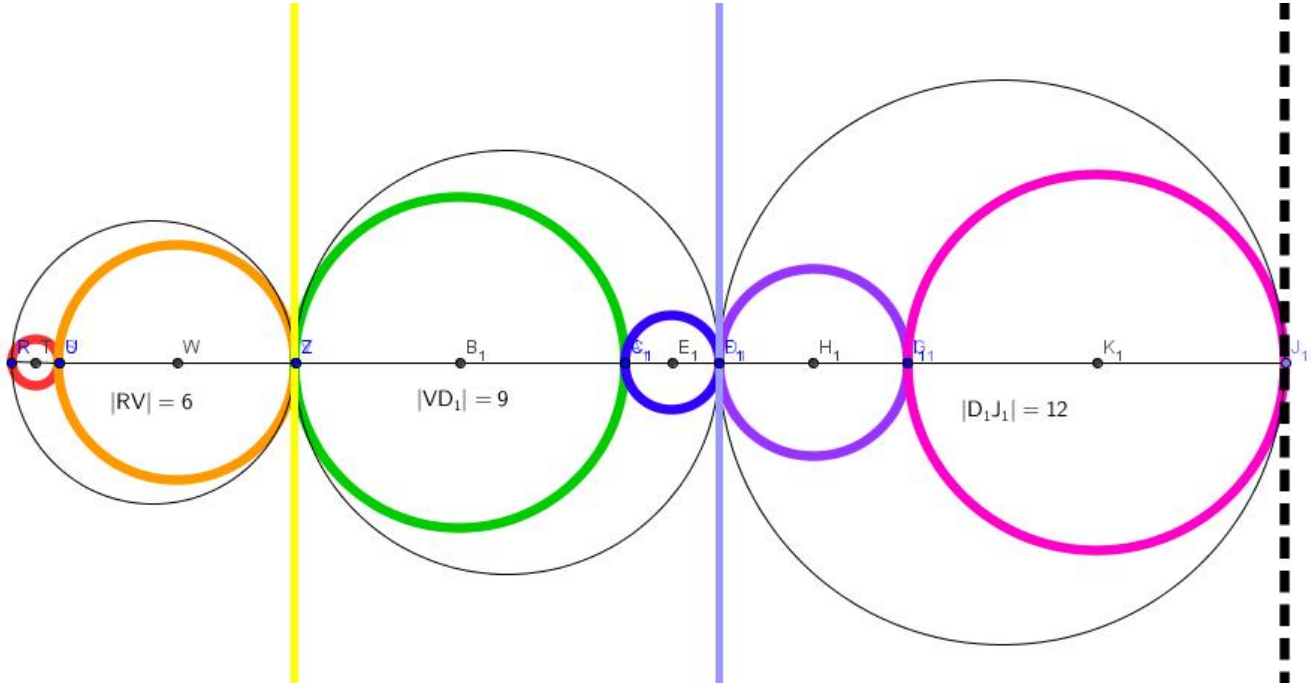




There is a never ending spiral of halving and doubling visualized as per above - starting from left to right 1 - 2 - 4 -5 - 7 - 8

Here are our steps lined up side by side.... there are our rows from the grid... vertical lines are 3,6,9 and the black circles encompassing our coloured circles result in some interesting dimensions ☺

Sequential Steps (1-2-3...)
1st Row - 1
2nd Row - 5
3rd Row - 0
4th Row - 7
5th Row - 2
6th Row - 0
7th Row - 4
8th Row - 8



And here we see the appearance of 3,6,9!

first 2x circles result in 6
second 2x circles result in 9
third 2x circles result in 3

THE FOLLOWING PAGES ARE ‘WORK IN PROGRESS’ WITH REGARDS TO THAT WHAT HAS BEEN PRESENTED THUS FAR.

THAT IS NOT TO SAY THAT THE PREVIOUS PAGES UP UNTIL NOW, ARE COMPLETE (or not).

TO SAY WHERE THE END IS, I CAN NOT... WE CAN JUST KEEP EXPANDING, EXTRAPOLATING... WE ARE DEALING WITH A FRACTAL NATURE – WITH NATURE – WITH INFINITY.

THE KEY SEEMS TO BE, TO EMBRACE THIS NATURE ☺

THE PATH ALREADY BEGUN, HAS A STRONG FOLLOWING... MORE COLLABORATION TO COME, MORE OUTPUT TO BE SHARED... keep watching ☺

WIP

WIP - Analysis of gaps, sums and so forth

	1-2	SUM	1-9	SUM
1	1	3	8	45
2	5	27	40	205
3				
4	7	39	56	285
5	2	9	16	85
6				
7	4	21	32	165
8	8	45	64	325
9				

COLUMNS

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72

FILLED IN **BOLD** are the sequential numbers

1 2 3 4 5 6 7 8 9

1 3 5 7 9 **2** 4 6 8 1 **3** 5 7 9 2 **4** 6 8 1 3 **5** 7 9 2 4 **6** 8 1 3 5 **7** 9 2 4 6 **8** 1 3 5 7 **9**

1 5 9 4 8 3 7 **2** 6 1 5 9 4 8 **3** 7 2 6 1 5 9 **4** 8 3 7 2 6 1 **5** 9 4 8 3 7 2 **6** 1 5 9 4 8 3 **7** 2 6 1 5 9 4 **8** 3 7 2 6 1 5 **9**

1 6 **2** 7 **3** 8 **4** 9 **5** 1 **6** 2 **7** 3 **8** 4 **9**

1 8 6 4 **2** 9 7 5 **3** 1 8 6 **4** 2 9 7 **5** 3 1 8 **6** 4 2 9 **7** 5 3 1 **8** 6 4 2 **9**

1 9 8 7 6 5 4 3 **2** 1 9 8 7 6 5 4 **3** 2 1 9 8 7 6 5 **4** 3 2 1 9 8 7 6 **5** 4 3 2 1 9 8 7 **6** 5 4 3 2 1 9 **8** 7 6 5 4 3 2 1 **9**

HIGHLIGHTED & FILLED OUT TO END = would be at front = sequential numbers **GREEN** text are those that would follow to the end of the longest string

1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9

2 4 6 8 1 3 5 7 9 **2** 4 6 8 1 **3** 5 7 9 2 **4** 6 8 1 3 **5** 7 9 2 4 **6** 8 1 3 5 **7** 9 2 4 6 **8** 1 3 5 7 **9** 2 4 6 8 1 3 5 7 9 2 4 6 8 1 3 5 7 9 2 4 6 8 1 5 3 7 9

4 8 3 7 2 6 1 5 9 4 8 3 7 **2** 6 1 5 9 4 8 **3** 7 2 6 1 5 9 **4** 8 3 7 2 6 1 **5** 9 4 8 3 7 2 **6** 1 5 9 4 8 3 **7** 2 6 1 5 9 4 **8** 3 7 2 6 1 5 **9** 4 8 3 7 2 6 1 5 9

5 1 6 **2** 7 **3** 8 **4** 9 **5** 1 **6** 2 **7** 3 **8** 4 **9** 5 1 6 2 7 3 8 4 9 5 1 6 2 7 3 8 4 9 5 1 6 2 7 3 8 4 9 5 1 6 2 7 3 8 4 9 5 1 6 2 7 3 8 4 9

7 5 3 1 8 6 4 **2** 9 7 5 **3** 1 8 6 **4** 2 9 7 **5** 3 1 8 **6** 4 2 9 **7** 5 3 1 **8** 6 4 2 **9** 7 5 3 1 8 6 4 2 9 7 5 3 1 8 6 4 2 9 7 5 3 1 8 6 4 2 9

8 7 6 5 4 3 2 1 9 8 7 6 5 4 3 **2** 1 9 8 7 6 5 4 **3** 2 1 9 8 7 6 5 **4** 3 2 1 9 8 7 6 **5** 4 3 2 1 9 8 7 **6** 5 4 3 2 1 9 **8** 7 6 5 4 3 2 1 **9**

SEQUENTIAL NUMBERS REPEATED

1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9

2 4 6 8 1 3 5 7 9 **2** 4 6 8 1 **3** 5 7 9 2 **4** 6 8 1 3 **5** 7 9 2 4 **6** 8 1 3 5 **7** 9 2 4 6 **8** 1 5 3 7 **9** 2 4 6 8 1 3 5 7 9 2 4 6 8 1 3 5 7 9

4 8 3 7 2 6 1 5 9 4 8 3 7 **2** 6 1 5 9 4 8 **3** 7 2 6 1 5 9 **4** 8 3 7 2 6 1 **5** 9 4 8 3 7 2 **6** 1 5 9 4 8 3 **7** 2 6 1 5 9 4 **8** 3 7 2 6 1 5 **9** 4 8 3 7 2 6 1 5 9

5 1 6 **2** 7 **3** 8 **4** 9 **5** 1 **6** 2 **7** 3 **8** 4 **9** 5 1 6 2 7 3 8 4 9 5 1 6 2 7 3 8 4 9 5 1 6 2 7 3 8 4 9 5 1 6 2 7 3 8 4 9 5 1 6 2 7 3 8 4 9

7 5 3 1 8 6 4 **2** 9 7 5 **3** 1 8 6 **4** 2 9 7 **5** 3 1 8 **6** 4 2 9 **7** 5 3 1 **8** 6 4 2 **9** 7 5 3 1 8 6 4 2 9 7 5 3 1 8 6 4 2 9 7 5 3 1 8 6 4 2 9

8 7 6 5 4 3 2 1 9 8 7 6 5 4 3 **2** 1 9 8 7 6 5 4 **3** 2 1 9 8 7 6 5 **4** 3 2 1 9 8 7 6 **5** 4 3 2 1 9 8 7 **6** 5 4 3 2 1 9 **8** 7 6 5 4 3 2 1 **9**

LEVELING OUT -> Aligning the lines

TO 1: Aligning the 1's to the 'start'

TO 9: Aligning the 9's to the 'end' -- to be

Aim here, was to see if any alignment, would result in further patterns.

Semi conclusion = the lines need to continue quite a bit out until repetition will occur - to be worked

LEVELLED OUT TO 1

1 2 3 4 5 6 7 8 9

1 3 5 7 9 **2** 4 6 8 1 **3** 5 7 9 2 **4** 6 8 1 3 **5** 7 9 2 4 **6** 8 1 3 5 **7** 9 2 4 6 **8** 1 5 3 7 **9**

1 5 9 4 8 3 7 **2** 6 1 5 9 4 8 **3** 7 2 6 1 5 9 **4** 8 3 7 2 6 1 **5** 9 4 8 3 7 2 **6** 1 5 9 4 8 3 **7** 2 6 1 5 9 4 **8** 3 7 2 6 1 5 **9**

1 6 **2** 7 **3** 8 **4** 9 **5** 1 **6** 2 **7** 3 **8** 4 **9**

1 8 6 4 **2** 9 7 5 **3** 1 8 6 **4** 2 9 7 **5** 3 1 8 **6** 4 2 9 **7** 5 3 1 **8** 6 4 2 **9**

1 9 8 7 6 5 4 3 **2** 1 9 8 7 6 5 4 **3** 2 1 9 8 7 6 5 **4** 3 2 1 9 8 7 6 **5** 4 3 2 1 9 8 7 **6** 5 4 3 2 1 9 8 **7** 6 5 4 3 2 1 9 **8** 7 6 5 4 3 2 1 **9**

LEVELLED OUT TO 1 & FILLED OUT TO END

GREEN text are those that would follow to the end of the longest string

BLUE text is to indicate that this is overhang from the end of the longest string

1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9

1 3 5 7 9 **2** 4 6 8 1 **3** 5 7 9 2 **4** 6 8 1 3 **5** 7 9 2 4 **6** 8 1 3 5 **7** 9 2 4 6 **8** 1 3 5 7 **9** 2 4 6 8 1 3 5 7 9 2 4 6 8 1 3 5 7 9 2 4 6 8 1 3 5 7 9 2 4 6 8 1 3 5 7 9

1 5 9 4 8 3 7 **2** 6 1 5 9 4 8 **3** 7 2 6 1 5 9 **4** 8 3 7 2 6 1 **5** 9 4 8 3 7 2 **6** 1 5 9 4 8 3 **7** 2 6 1 5 9 4 **8** 3 7 2 6 1 5 **9** 4 8 3 7 2 6 1 5 9 4 8 3 7 2 6 1 5 9

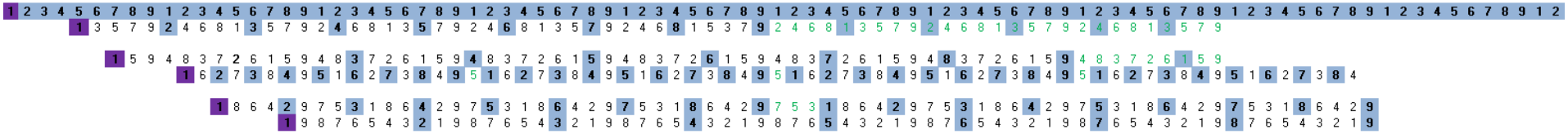
1 6 **2** 7 **3** 8 **4** 9 **5** 1 **6** 2 **7** 3 **8** 4 **9** 5 1 6 2 7 3 8 4 9 5 1 6 2 7 3 8 4 9 5 1 6 2 7 3 8 4 9 5 1 6 2 7 3 8 4 9 5 1 6 2 7 3 8 4 9 5 1 6 2 7 3 8 4 9

1 8 6 4 **2** 9 7 5 **3** 1 8 6 **4** 2 9 7 **5** 3 1 8 **6** 4 2 9 **7** 5 3 1 **8** 6 4 2 **9** 7 5 3 1 8 6 4 2 9 7 5 3 1 8 6 4 2 9 7 5 3 1 8 6 4 2 9 7 5 3 1 8 6 4 2 9 7 5 3 1 8 6 4 2 9

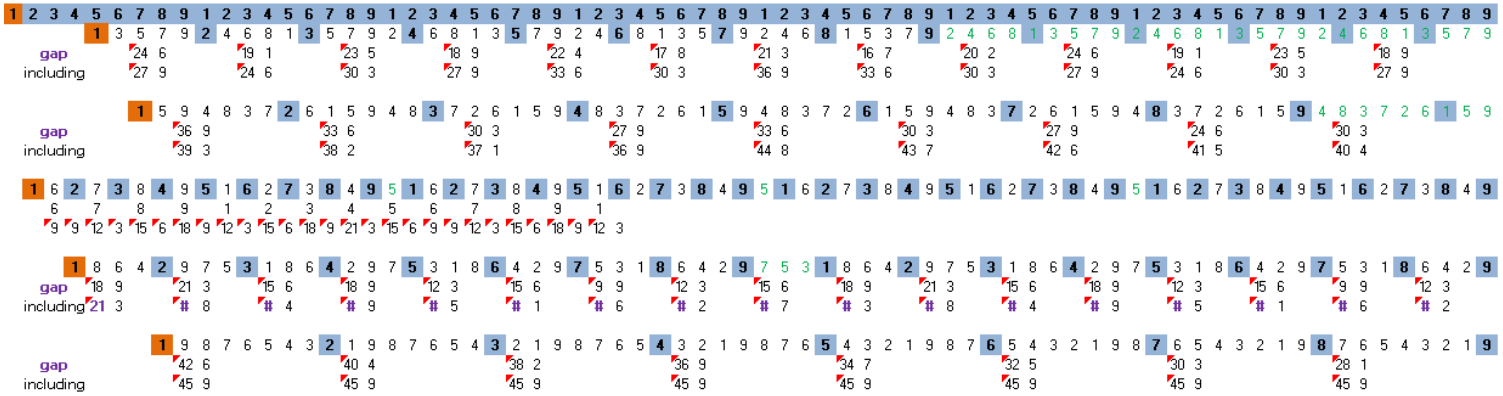
1 9 8 7 6 5 4 3 **2** 1 9 8 7 6 5 4 **3** 2 1 9 8 7 6 5 **4** 3 2 1 9 8 7 6 **5** 4 3 2 1 9 8 7 **6** 5 4 3 2 1 9 8 **7** 6 5 4 3 2 1 9 **8** 7 6 5 4 3 2 1 **9** 8 7 6 5 4 3 2 1 9 8 7 6 5 4 3 2 1 9 8 7 6 5 4 3

WIP - Attempting to find the length of repetition of sequence until entire combination of rows start repeating...

STARTING AT NEXT ROW FOR 1



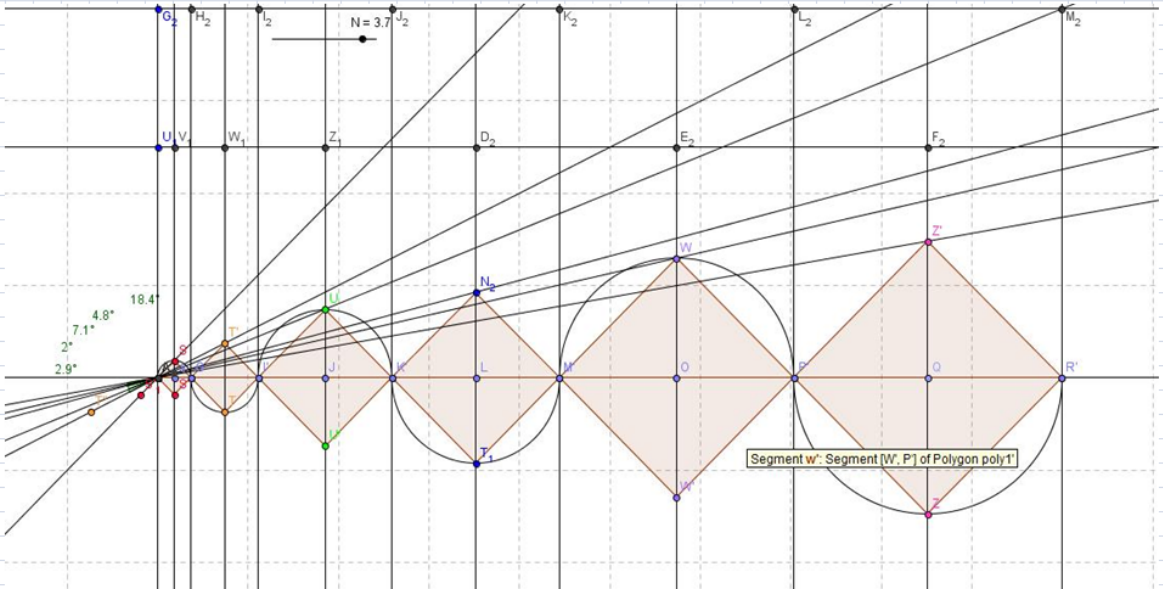
STARTING AT ANY POSITION FOR 1



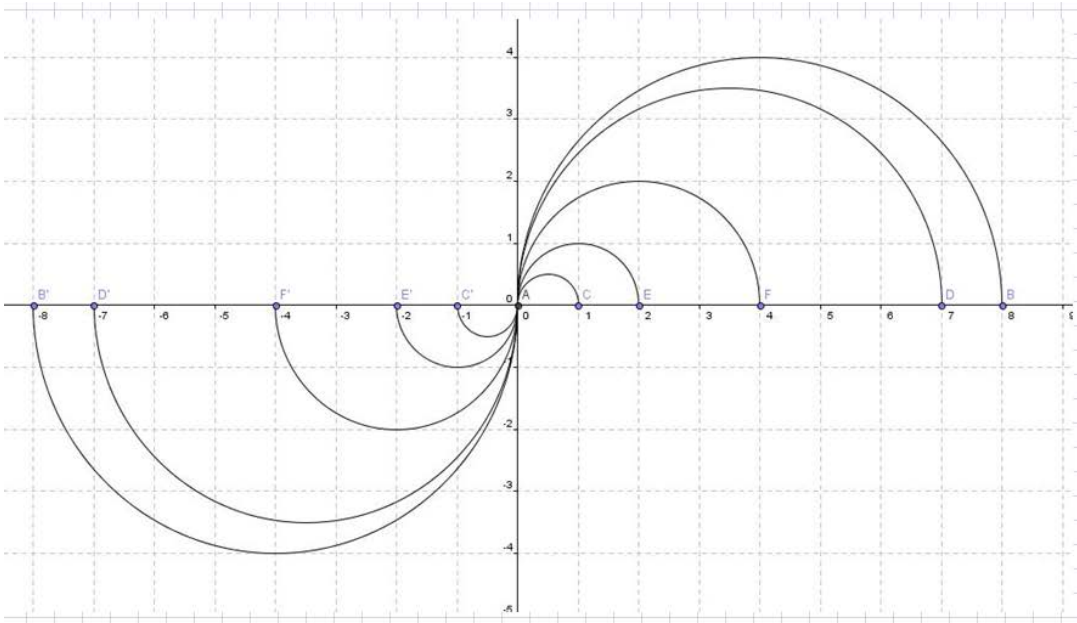
I suspect that our numbers are fractal = zoom into the + and we will see the uncompressed grid reappearing = but the order of this fractal and the equation for it, not yet investigated = I suspect however, doubling and halving will be our key

Geogebra is a mighty tool... We can measure everything we need... There is a version in 3D also, but I have not begun down that route yet

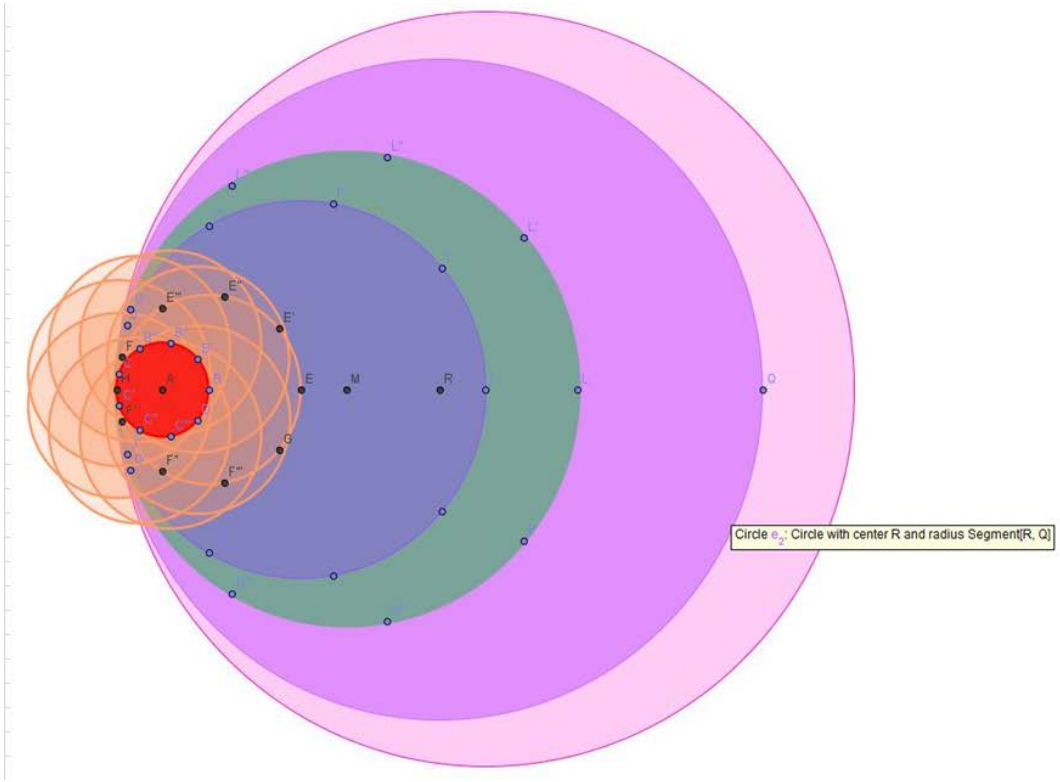
The most tantilizing aspect, is the adjustments one can make - move one point, watch the rest be impacted/affected...



Some geometry measuremens, dimensions, relationships, ratios read from our steps-distances



Here I would like to twist round and return a 9 armed vortex style spiral

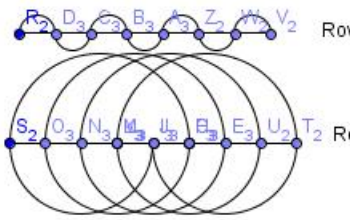


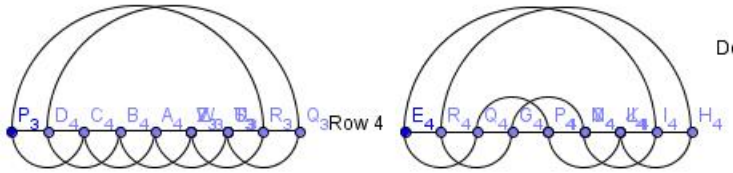
Here I would like to replicated the concentric circle as per image for the 1st of the circles, for each circle

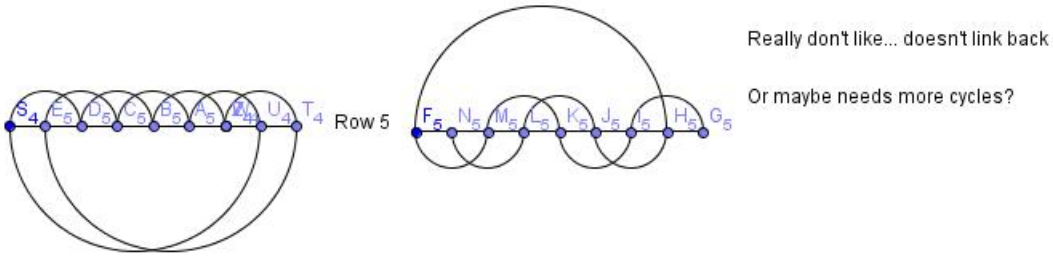
A centered version to follow also...

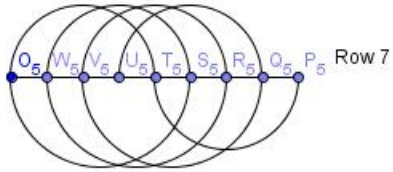
Sequential Stepping - to the nearest

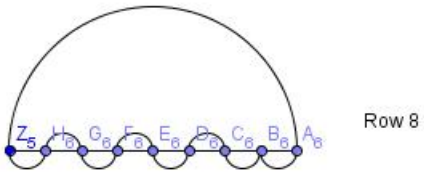
What about joining together?
What about 3, 6, 9 ?

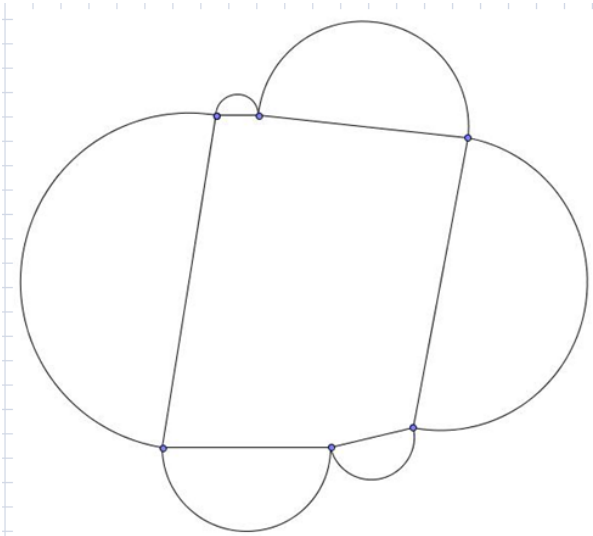




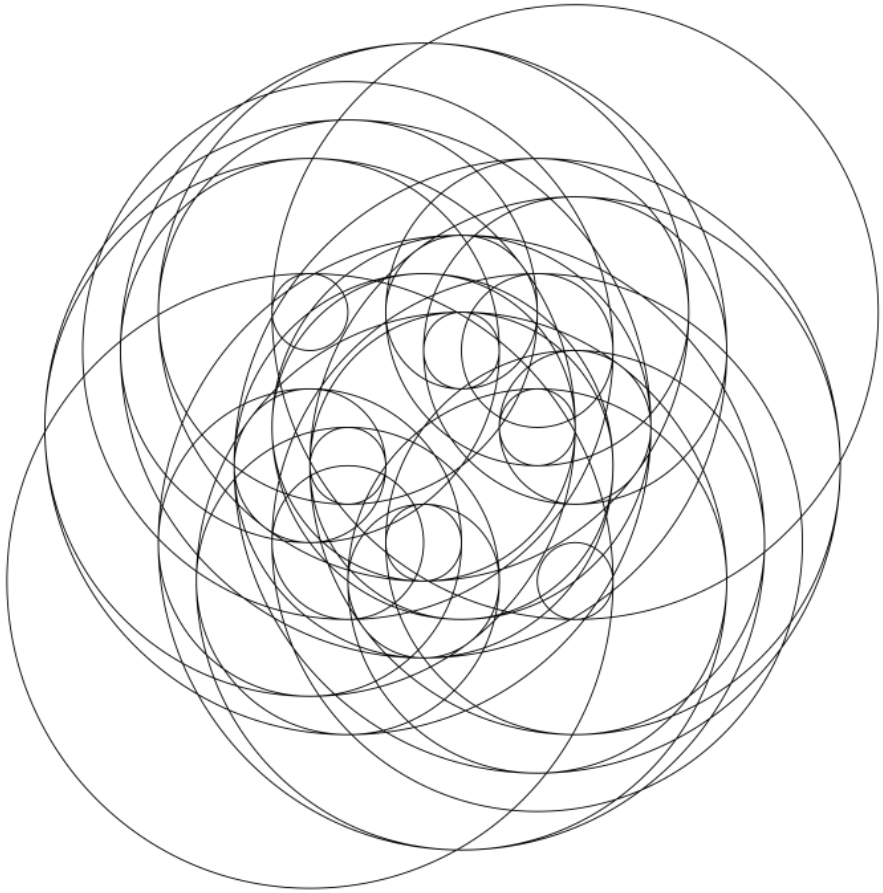








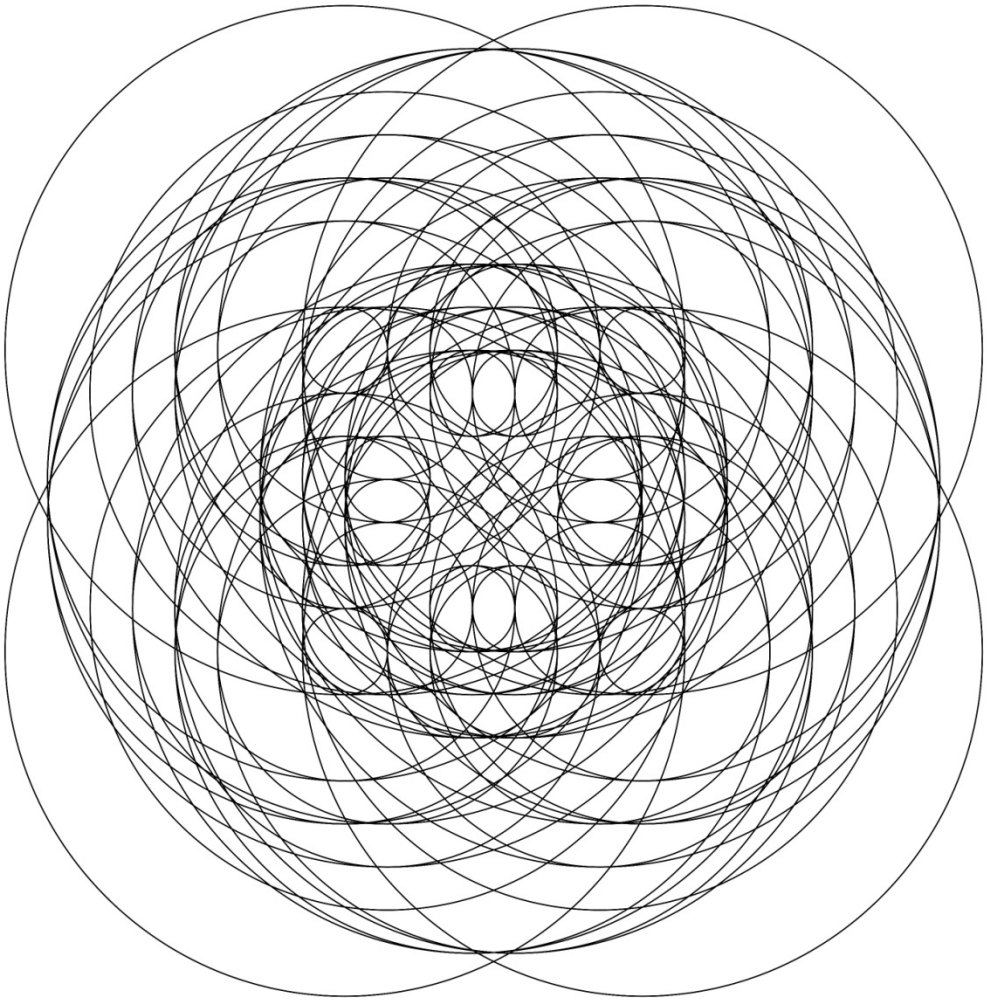
Playing with arrangements of the semi circles - not entirely sure where this thought came from, but it is an additional path to check out



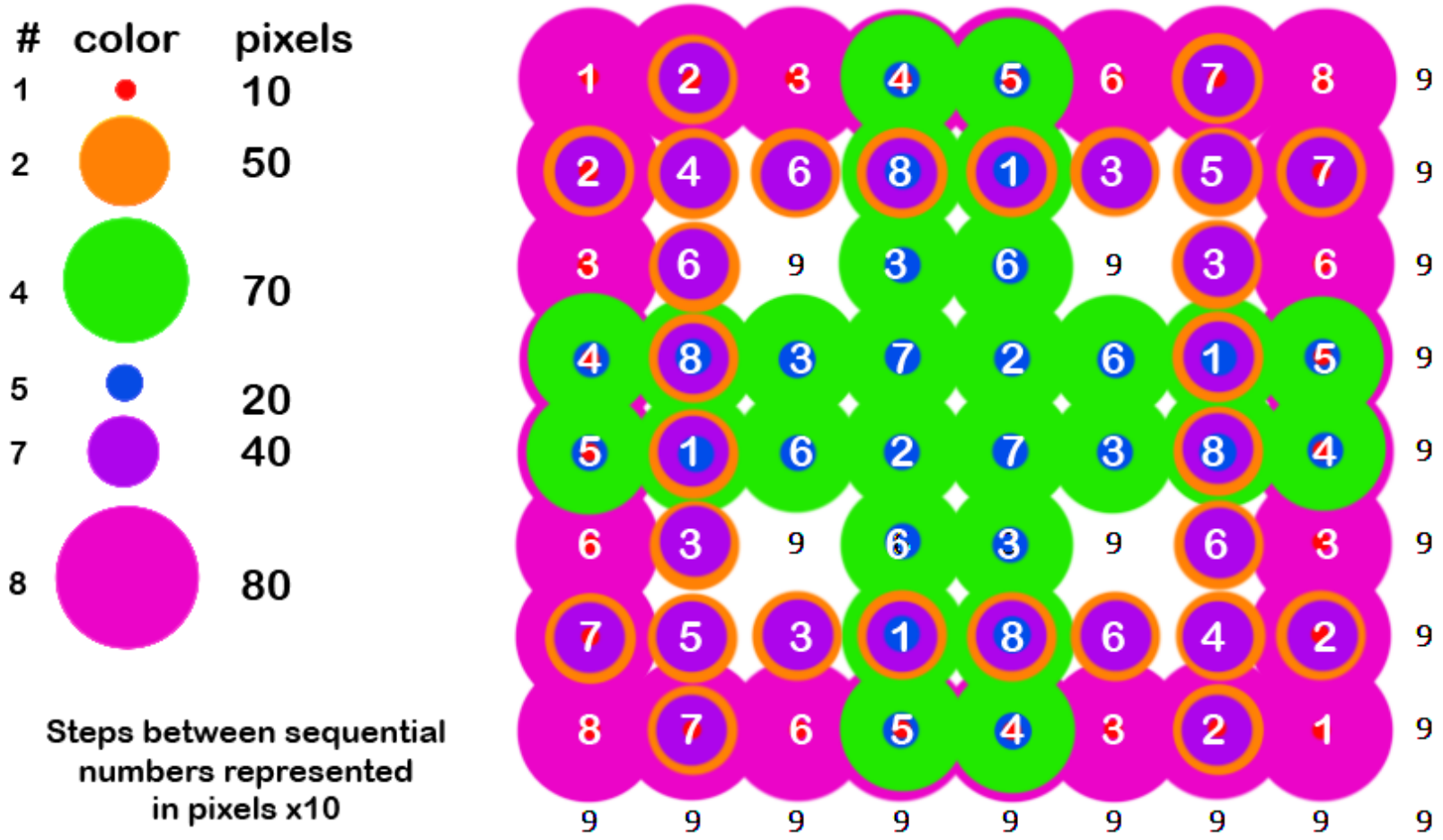
<u>This is the result of placing onto our standard grid, our sized circles on respective numbers of the grid.</u>

i.e. circle for 1 step -> on number 1 position circle for 8 step -> on number 8 position

No real logic to that... is just a play... as is the next image



This is the same concept as the last image, but mirrored across 90 and 45 degrees.



i.e. 1 = 10 pixels.... 8 = 80 pixels

<u>Again, not so much logic behind this one, just a play with representation</u>

Just placing the sized circles onto the respective rows